DOCUMENT RESUME

ED 258 106 CG 018 309

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TITLE Protection Motivation and Self-Efficacy: A Model of Health Enhancement.
PUB DATE Apr 85
NOTE 16p.; Paper presented at the Annual Convention of the Southwestern Psychological Asscciation (31st, Austin, TX, April 18-20, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Patterns; Cognitive Processes; Higher Education; *Predictor Variables; Social Values; Undergraduate Students
IDENTIFIERS Health Promotion; Outcomes Expectancy; *Protection Motivation Theory; *Self Efficacy

ABSTRACT

Protection motivation theory proposes that a perceived threat to health activates cognitive appraisals of the severity of the threatened event, the probability of its occurrence, and the efficacy of a coping response; a recent reformulation of the theory incorporates self-efficacy expectancy as a fourth mediating cognitive process. To test the usefulness of the reformulated theory in a health-enhancement situation, 195 college students participated in an experiment examining their intentions to sign-up for and participate in an exercise program. Subjects indicated their agreement with various statements after reading a description of the program which manipulated outcome expectancy (high or low probability of benefit from the program) outcome value (high or low value placed on the program by society), and self-efficacy expectancy (easy or difficult to complete the program). Analysis of results indicated that both self-efficacy expectancy and outcome expectancy influenced subjects' intentions to perform a health-enhancing behavior. The findings suggest that self-efficacy expectancy may not be a good predictor of behavioral intention in low-risk situations, unless those situations involve health-related behaviors. (MCF)

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Protection Motivation and Self-Efficacy:

A Model of Health Enhancement

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Presented at Southwestern Psychological Association, Austin, TX, April 18 - 20, 1985.

This research was conducted under the supervision of James E. Maddux.

The author gratefully acknowledges Rissa Robinson for her assistancy in data collection and John Harvey and JoAnn Barnes for helpful comments on an earlier version of this article.

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Abstract

The usefulness of reformulated protection motivation theory as a model of health enhancement was investigated via a persuasive communications paradigm. Self efficacy expectancy, outcome expectancy, and perceived social value of a health-enhancing behavior were manipulated. As predicted, both self-efficacy expectancy and outcome expectancy had significant main effects on subjects' intentions to perform the health-related behavior. Social value had no signficant effect on behavioral intentions. Correlational data indicated that outcome expectancy was the best single predictor of intentions, but that self-efficacy expectancy was also a significant predictor of intentions. Social value added no predictability. These results support the utility of the reformulated protection motivation theory as a model of health enhancement.

Protection Motivation and Self-Efficacy

A Model of health Enhancement

Despite health psychology's dual emphasis on promotion of health and prevention of illness (Matarazzo, 1980), the majority of research has concentrated on prevention (Matarazzo, 1982; Kirscht, 1983). Theories of health behavior decision-making (protection motivation theory; Maddux & Rogers, 1983; Rogers, 1975, 1983; the health belief model; Rosenstock and Kirscht, 1979) have focused also on prevention rather than on enhancement of health. These prevention models have suggested that changes in health behavior occur when a person fears that his or her current behavior may lead to some unhealthy condition (Rogers, 1975). A model of health enhancement, on the other hand, would apply not only to behavior change in currently or potentially unhealthy individuals, but also to behavior change in currently healthy individuals who want to improve their health.

The first step in developing a model of health enhancement might be to expand an existing model of prevention such as protection motivation theory (Maddux & Rogers, 1983; Rogers, 1975, 1983). Protection motivation theory proposes that a perceived threat to health activates cognitive appraisals of (1) the severity of the threatened event, (2) the probability of the occurrence of the event, and (3) the efficacy of a recommended

coping response. A recent reformulation of protection motivation theory (Maddux & Rogers, 1983; Rogers, 1983) has incorporated self-efficacy expectancy as a fourth mediating cognitive process (Bandura, 1977; 1982).

Maddux and Rogers (1983) found that reformulated protection motivation theory was a useful paradigm for the study of disease prevention. They also suggested that the theory might be useful as a general model of attitude change. The probability of occurrence of a threatened event can be viewed as an outcome expectancy for one's current behavior (OEc) and the efficacy of a coping response can be viewed as an outcome expectancy for an alternative behavior (OEa). The noxiousness or severity of the threatened event is concerned with the value of OEc relative to OEa. Self-efficacy expectancy for OEa becomes the fourth component.

This general model of prevention lends itself easily to adoption as a model of health enhancement. The four cognitive components specified by Maddux & Rogers (1983) may mediate intentions to perform an alternative health-enhancing behavior even when one's current behavior is not expected to lead to disease or disability. Each of these four components has received empirical support as an important predictor of behavioral intentions and behaviors (e.g., Bandura, Adams, & Beyer, 1977; Maddux, Sherer & Rogers, 1984). Recent studies of

health behavior also provide evidence for the importance of these constructs (e.g., Turk, Rudy, & Salovey, 1984; Alagna & Reddy, 1984).

The present study investigated the usefulness of these general concepts of reformulated protection motivation theory in a health-enhancement situation. Specifically, the experiment examined the effects of outcome expectancy for a health-enhancing behavior, self-efficacy expectancy for the behavior, and the value of the outcome of that behavior on subjects' self-reported intentions to sign-up for and participate in an exercise program.

Method

Design and Subjects

The experiment employed a 2 x 2 x 2 between-subjects factorial design with two levels (high and low) of outcome expectancy, self-efficacy expectancy, and outcome value. Subjects were 195 male and female undergraduate students who received course credit for their participation.

Stimulus Materials

The independent variables were manipulated via written communications which included information about an exercise program. The program was described as a combination of stretching exercises, aerobics, running, and weight-lifting. Following the written description of the program were essays which manipulated the independent variables. The outcome

expectancy essay led subjects to expect either a high or a low probability that they would benefit physically and psychologically from participation in the program. The outcome value essay indicated that the positive outcomes of the exercise program were valued highly by the majority of society or by only a minority of the population. The self-efficacy essay led subjects to believe that it would be very easy or very difficult for them to complete the program.

Dependent Measures

Subjects indicated their degree of agreement with various statements on eleven-point rating scales, the endpoints of which were "strongly agree" and "strongly disagree." Items were scored so that higher numbers indicated stronger agreement.

A check on the success of the outcome expectancy manipulation consisted of seven questionnaire items concerned with subjects' expectations about the effects of the exercise program. A manipulation check of outcome value consisted of four questionnaire items designed to assess subjects' perceptions of the importance society places on the effects of the program. The validity check of the self-efficacy expectancy manipulation consisted of three items concerned with subjects' perceptions of their ability to complete the program. Scores on these manipulation check items were based on the mean ratings for the items in each group. Alpha coefficients for the clusters were:

outcome expectancy = .86, social value = .45, self-efficacy expectancy = .71.

The behavioral intentions measure consisted of two items concerned with subjects' intentions to sign-up for and participate in the NAHI program. Since these two items were significantly correlated (r = .79), they were combined in the data analysis.

As a second dependent measure, subjects were given the opportunity to sign-up to attend an orientation meeting for the program to be held in approximately six weeks. Subject responses were scored according to a yes/no categorization, based on whether or not they signed their names.

Subjects were asked to indicate if they were currently involved in an organized exercise program. Subjects were to be omitted from the experiment if they already were involved in an exercise program similar to the one described since their current participation might effect their willingness to sign-up for or participate in the described program.

Procedure

Subjects were run in groups of six to twelve and were randomly assigned to conditions. Written instructions indicated that subjects would be asked to read and evaluate a series of essays describing a novel exercise program. Subjects were told that the experimenters were interested in student evaluations of

written materials designed to educate the student body about the program. Subjects were given a booklet that contained instructions for the experiment, a description of the exercise program, three essays containing experimental manipulations, and questionnaire items. They were instructed to proceed through the booklet pages in the order that they were presented. After all subjects in each group completed the booklet, they were debriefed and thanked for their participation.

Results

No subjects indicated that they were involved currently in an exercise program similar to the one described in the present study. Thus, data from all subjects were included in the analyses.

Manipulation Checks

Self-efficacy expectancy. Subjects in the high self-efficacy expectancy condition had significantly stronger self-efficacy expectancies for completing the exercise program than did subjects in the low self-efficacy expectancy condition (Ms = 8.4 and 6.5), $F(1, 187) = 54.27$, $p < .0001$. No other significant main or interaction effects were found.

Outcome expectancy. Subjects in the high outcome expectancy condition had higher expectations for the positive benefits of the exercise program than did subjects in the low outcome expectancy condition (Ms = 8.1 and 6.5), $F(1, 187) = 54.71$,

$p<.0001$. Also, subjects in the high value condition had stronger outcome expectancies than did subjects in the low value condition (ms = 7.5 and 7.0), $F(1,187) = 4.66$, $p<.03$. No other significant main or interaction effects were found.

Outcome value. The high value condition produced stronger value scores than did the low value condition (Ms = 9.1 and 7.4), $F(1,187) = 64.83$, $p< .00001$. Also, the high outcome condition produced stronger value scores than did the low outcome expectancy condition (Ms = 8.6 and 7.9), $F(1,187)=8.90$, $p<.003$. No other significant main or interaction effects were found.

Dependent Measures

Behavioral intentions. The analysis of variance on the combined behavioral intention score indicated significant main effects for outcome expectancy, $F(1,187) = 5.54$, $p<.02$, and self-efficacy expectancy, $F(1,187) = 4.85$, $p<.03$. Subjects in the high outcome expectancy condition reported stronger behavioral intentions than subjects in the low outcome expectancy condition (Ms= 6.9 and 6.0). Subjects in the high self-efficacy expectancy condition reported stronger behavioral intentions than subjects in the low self-efficacy expectancy condition (Ms= 6.9 and 6.0). No other significant effects were found.

Sign-ups. Chi square analyses on the number of subjects who signed-up to attend an orientation meeting indicated nonsignificant trends in the predicted direction for

self-efficacy expectancy and outcome expectancy that corresponded with ANOVA results.

Correlational analyses.

Behavioral intentions were correlated positively and significantly with outcome expectancy ($r = .51$, $p<.0001$), self-efficacy expectancy ($r = .41$, $p<.0001$), and outcome value ($r = .19$, $p<.02$). In addition, outcome expectancy and self-efficacy expectancy each correlated positively and significantly with the outcome value measure ($r = .38$, $p<.0001$; $r = .17$, $p<.02$), and outcome expectancy correlated significantly with self-efficacy expectancy ($r = .24$, $p<.0009$).

A hierarchical multiple regression (Cohen & Cohen, 1975) indicated that outcome expectancy was the best predictor of behavioral intentions ($R^2=.26$). Self-efficacy was also a significant predictor of behavioral intentions ($R^2=.17$) and it added significant predictability to outcome expectancy ($R^2=.35$, $p<.001$). Outcome value added no predictability to the model.

Discussion

The present study tested the usefulness of reformulated protection motivation theory as a model of health enhancement. Results indicate that reformulated protection motivation theory may be useful as a model of health enhancement. Both self-efficacy expectancy and outcome expectancy influenced subjects' intentions to perform a health-enhancing behavior.

Failure to find significant effects on a measure of subjects' actual sign-up behavior may have resulted from the restricted sensitivity of a "yes-no" measure. A measure requesting commitment of amount of time to exercise may be more sensitive.

Results of the present study, in combination with results of previous work, suggest that self-efficacy expectancy may not be a good predictor of behavioral intentions in low-risk situations (Maddux, et al., 1982; Maddux, et al., 1984) unless those situations involve health-related behavior (Maddux & Rogers, 1983). Results suggest that in low-risk, health-enhancement situations such as the present situation, self-efficacy expectancy may play a role that is secondary to outcome expectancy. It is possible that when a risk component is added to a health-related situation, self-efficacy expectancy may become a more important predictor of behavioral intentions than outcome expectancy (Wurtele, 1984; Maddux & Rogers, 1983). Further research should address this hypothesis.

The present study was the first attempt to formulate and test a model of health-enhancement. As such, this initial investigation serves as a foundation upon which a more comprehensive theory of health-enhancement can be built. Future work will need to refine and build upon this model, by testing its efficacy in predicting various types of health-enhancing behaviors, by broadening the measures of behavior and behavioral

intentions used, and by attempting further application of the model in more naturalistic settings.

Because this study was conducted under laboratory analogue conditions (as in Maddux & Rogers, 1983; Maddux et al., 1984), generalization to natural settings can be made only tentatively. In addition, generalization to populations other than college students may be made only tentatively. Other research has suggested that different populations may be differentially influenced by cognitive components equivalent to concepts investigated here (Turk, Rudy, & Solovey, 1984).

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